

FLIGHT

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AND AIRSHIPS

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Editor
C. M. POULSEN

Managing Editor
G. GEOFFREY SMITH

Chief Photographer
JOHN YOXALL

Editorial, Advertising and Publishing Offices: DORSET HOUSE, STAMFORD STREET, LONDON, S.E.1

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Telephone: Hop 3333 (50 lines).

HERTFORD ST.,
COVENTRY.
Telegrams: Autocar, Coventry.
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Pacific Air Routes

PAN AMERICAN AIRWAYS are nothing if not enterprising. Services from San Francisco to the Philippines and New Zealand are a most ambitious programme, but the world has long got past the stage of thinking of such lengthy crossings of the ocean as technically impracticable. Navigation by wireless and flying by instruments have been greatly developed since Sir Charles Kingsford Smith first flew the *Southern Cross* from California to Queensland, and yet he and his crew made Hawaii and Fiji with unerring accuracy.

The Martin flying boat *China Clipper* is paving the way for a fortnightly service between San Francisco and Manila, while the New Zealand Government has just signed an agreement with Pan American Airways which provides for a service between Auckland and San Francisco by the end of next year, which will give from two return trips a month to two a week. The Dominion Government has been careful to stipulate for British rights, for there is a penalty clause in the agreement to the effect that the concession may be cancelled on twelve months' notice by the Dominion if reciprocal rights are not accorded to a British company working from New Zealand. Pan American Airways cannot speak for the United States Government, but they will lose their New Zealand concession if that Government tries to keep the whole route in American hands. More we could not expect, and the agreement seems to be satisfactory.

Meantime Imperial Airways have not been idle. The series of trial flights between Penang and Hong Kong have been successfully carried through, and a regular service to link Hong Kong with the main Eastern airway may be looked for in the not distant future. In comparison with the longer stages it will be a simple matter to link up Hong Kong with Manila. It will only remain to set up a service across the Atlantic, and then the whole world will be circled by aircraft of the two English-speaking nations. The Atlantic problem is being tackled with energy, and success seems within sight.

Air War in the Hills

ALL military operations in which aircraft take part add something to our rather scanty knowledge of air power. Experience is not everything, for no war quite resembles the one before it. The great war mainly showed us the use of aircraft as an arm of an army. Operations since then in Somaliland, in Iraq, and on the Indian frontier have displayed other aspects of air power. It is on the possibilities of technical progress in aircraft rather than on the teachings of actual experience that theorists have painted pictures of air wars in the future. Pure theory, however, may be quite as misleading a guide as bare experience.

In Abyssinia we see a rather unique example of warfare. It cannot properly be dismissed as an adventure by a European nation in savage warfare. The Abyssinians are very poorly armed, and most of their soldiers are savages, but the Emperor is a civilised man, and he appears to be planning a campaign with the deliberation shown by other commanders of uncivilised troops. His problem has certain features in common with that which faced the great Montrose.

If—

So far as the air side of the problem goes, we see one belligerent well supplied with bomber aircraft, while the other side has only a very few reconnaissance and transport aeroplanes. The long lines of the Italian communications across the desert plains and up into the first ranges of mountains would be peculiarly susceptible to bombing attacks from the air, but as things are those communications remain unbombed. It is very interesting to speculate on what would have happened if Abyssinia had during the last few years concentrated on building up an efficient air force. No matter how many squadrons of fighters the Italians might have landed in Eritrea, they could not have kept all the long lines immune, and their advance would certainly have been much more difficult than it actually has been.

However, the Italians have crossed the plains on the northern front, and are now negotiating the mountains. In hilly country machine guns are less deadly than they are on the plains, and resistance is to be expected. Bomber aircraft are also less deadly in the hills, but cases have occurred where the Italians have caught concentrations of their enemy among the mountains and have attacked them. In the valley of Mai Mesco a large force was attacked by Count Ciano with some twenty Capronis. Mussolini's son-in-law estimated the casualties at some two thousand; the Abyssinians admitted thirty killed. What is certain is that many of the Capronis were shot about, three, including the leader's, were forced to land in friendly territory, and one mechanic was hit and died of his wound. Even though the Italians dived low in their attack, one would hardly have expected the Abyssinians to have made such good shooting. With practice they may do still better.

The interesting question now is whether the Italian airmen will be able to spot the majority of Abyssinian concentrations, and, if they are spotted, to disperse them for more than a short time. It should be possible for large forces to hide themselves from air observers by taking loose formation among the rocks, as the Pathan tribesmen are adepts at doing, ready for a surprise attack at a favourable moment. The next stage of the operations seems to depend largely on whether the aircraft can beat the mountains or the mountaineers can outwit the aircraft.

Air Defence Overseas

THE air correspondent of the *Daily Telegraph*, Major C. C. Turner, has announced that some 200 to 250 additional aircraft are to be ordered for the purpose of strengthening the R.A.F. overseas Commands. While this is probably an intelligent anticipation, an official announcement on the subject may shortly be expected.

Hitherto the establishments of the overseas Commands have been kept to the minimum thought necessary for their "police" duties. They include no fighter squadrons, as combats with enemy aircraft have not seemed possible. If the present balance of power in either Africa or Asia were to be radically altered, the presence of British fighters in the parts affected would become a necessary precaution. There are only three squadrons of flying boats overseas—at Malta, Basra, and Singapore respectively, and they have only four aircraft apiece. For peace time, to say nothing of war, that supply is surely exiguous. Prudence would also dictate an increase of bomber-transport squadrons, for their utility is manifold. The overseas Commands are best off for general-purpose units. The Singapore garrison of three squadrons will certainly have to be strengthened before long; and another twenty squadrons, suitably divided between the Commands, would not be an extravagant increase of the R.A.F. overseas.



CHINA CLIPPER : This, the first of the big Martin boats to be delivered to Pan American Airways, has now been put on the experimental trans-Pacific service between Alameda (California) and the Philippines. In its "daytime" layout, the *China Clipper* carries forty-three passengers and cruises at 157 m.p.h. for 3,000 miles.

The Outlook

A Running Commentary on Air Topics

Precision Bombing

ONCE again the Armament Officers' Bombing Trophy, for accuracy of bombing at an armament training camp, has been won by No. 101 (Bomber) Squadron. It was in 1931 that representatives of *Flight* paid a visit to No. 101 B.S. and recorded their impressions in an article. The squadron was then equipped with the Side-Strand, and it had already set up bombing records at Catfoss. Now, of course, it has the similar but superior Overstrand. The squadron itself attributes its success in precision bombing, not to the greater efficiency of its personnel so much as to the steadiness of the bombing platform provided by a machine with two engines. The absence of an engine in the nose means less vibration in the fuselage. Moreover, the bomb-aimer's seat in the nose is comfortable, and gives an excellent view. A comfortable position makes a man more efficient.

For dive bombing the light bomber with a single engine is now thought the most suitable type, but for precision bombing there really seems to be much merit in the two-engined aeroplane. Accuracy of bombing is now considered of such vast importance that an increase of medium-bomber squadrons would seem very desirable. No. 101 B.S. is now our one and only squadron with medium-bomber machines.

Putting the Cart First

IT appears that a certain North of England city which at one time boasted that it would become "the Croydon of the North," is likely to abandon a £250,000 airport scheme, yet the city's present aerodrome is admittedly inadequate for serious all-weather flying.

For a couple of summers an enterprising foreign air traffic company operated therefrom, and members of the Corporation have asked this company whether, if the new airport was put in hand, they would guarantee a daily service for at least ten years. The answer was, of course, a very definite negative. The use of air services is a habit which grows slowly and North of England people are not yet air-minded, though there may be immense potential air traffic in these parts.

Any airport owner who will only promise vitally necessary facilities if transport companies will operate services, is surely looking at things from an entirely wrong angle. This particular city is also a seaport, though it is doubtful if the origin of its greatness in this respect was founded by bargaining with shipping companies before starting harbour improvements which would allow big ships to use the port.

A Pressing Need

WHILE experiments are in progress at Croydon, there is little or no likelihood that blind or semi-blind landings will be made there during the winter, whatever may be done in the more distant future.

The Air Ministry is probably right in its policy of allowing blind approach systems to develop a little further before making any decision, but the position is rendered all the more difficult by reason of the fact that quite a large number of Continental aerodromes are already equipped with the German Lorenz short-wave system. This means, of course, that unless Croydon has a somewhat similar system, no machine of the Deutsche Luft Hansa concern, or, perhaps, of Air France—since experiments with this system are to be carried out at Le Bourget with Air France

machines—will be able to make future use of the airport in really bad conditions.

The need for the guidance of an approach beacon at least is very pressing indeed, and the thought that yet another winter will pass while Croydon remains "unapproachable" in really bad weather is not very encouraging. Only last week the pilot of the D.L.H. freighter, after flying around for an hour in the prevailing fog and darkness, put down as well as he could and rolled through a steel fence. That the conditions were really bad is shown by the fact that it took the fire engine and ambulance, which were not, fortunately, necessary, nearly twenty minutes to locate the machine.

An International Air Force

THE question of an International Air Force at the disposal of the League of Nations receives intermittent attention, and the war between Italy and Abyssinia has again brought it to the fore in certain quarters. In the July issue of *The Royal Air Force Quarterly*, Sqn. Ldr. R. E. G. Fulljames outlined a scheme for such a force, to which Great Britain, France, Italy and Germany should each contribute a number of squadrons. Once a year all the contingents would mobilise and train together for a month or so.

The Editor of *The Fighting Forces* alludes to this scheme in his October issue, and, while admitting that aircraft can only operate by bombing, and that bombing is the antithesis of police work, asks if such a force could not have acted as an advance guard of the League of Nations police in preventing the present war. He assumes that Signor Mussolini would have agreed beforehand to the installation of an international police force in Abyssinia.

An objection to this suggestion is that if Signor Mussolini had agreed to the League settling the business there would be no need for the League to use its air force. If an international police force on the Saar model had been decreed, then aircraft could play no useful part, except, perhaps, as police-carriers; and there could hardly have been need for such speedy transport. Of course, once hostilities had commenced the Italian section would have left the international force, and if that force were to be used at all its use would mean military sanctions, which, every sensible person is glad to note, have never been contemplated at Geneva in the present case.

Tapered Wings

IN view of the popularity of tapered wings on modern aircraft the lecture given by Mr. Nazir before the Students' Section of the Royal Aeronautical Society is of more than passing interest, and calls attention to the possibility that the air flow over such a wing may, in cases of pronounced taper, show certain peculiarities which could conceivably affect stability and controllability to a considerable extent. A summary of the paper is published in *The Aircraft Engineer* section this week, and now that Mr. Nazir has, as a result of his work at the Queen Mary College under Dr. Piercy, brought to light certain peculiarities of "bubbling" on a tapered wing, there is good reason for supplementing his discovery by full-scale tests.

Mr. F. G. Miles has done a certain amount with Hawk monoplanes, but the wings of these are not of very pronounced taper. It is to be hoped that Professor Melville Jones may be able to include in his programme of research at Cambridge University flight tests of a machine with sharply tapered wings.

CUTTING the COST

In this Controversial Article Mr. Philip Priest, a "Pou" Owner, Discusses the Essentials of Cheap Private Flying

The Aeronca, which, like the Pou, has focused attention on inexpensive aviation.

IT has been interesting to follow the various opinions on ultra-light aircraft expressed in *Flight* during the last few weeks, and as the future popularity of the movement is so bound up in the engine problem it should be worth while comparing notes.

To begin with, it is doubtful if a satisfactory machine will be built in the near future using less than 25/30 h.p. per person, as this seems to be the absolute minimum required effectively to clear surrounding obstacles. One or two very successful commercial machines operate on 30 h.p. per passenger (e.g., the Short Scion), so it would be as well to take this as the standard for the future most popular models, because more power means more expense and greater upkeep. Although certain people claim it is easier to sell a £1,000 aeroplane than a £300 aeroplane, there is no doubt that it is easier to sell a thousand £300 machines

than a thousand of the former. There are one hundred times the people who can afford the lower figure, but it will require a comfortable, safe, and economical machine to tempt them, as well as more numerous aerodromes with surrounding attractions. I know that one can buy fast, reliable, and good machines second-hand, but why does the average person purchase a new 12 h.p. car at £200 when he could possibly get a second-hand 50 h.p. Rolls-Royce at the same figure? Insurance, petrol consumption and overhauls, etc., supply the answer.

An aeroplane may have a reasonable sounding petrol consumption, but the miles are covered so quickly that half an hour in the air is three times the expense of half an hour in a car. A man will buy a machine not so much to visit the places he can reach by car as to enlarge his field of adventure, so he wants an engine that is large enough to answer his purpose, and no larger. He also wants car comfort and a low landing speed. If the machine is not efficient it will not live for long, because few people want to chug along at 65 m.p.h. if the same expense will give 85 m.p.h. with equal safety. There will, of course, be machines at every figure between £100 and £10,000, but the cheapest comfortable, safe, and reasonably fast machine will sell the best.

If aeroplanes can cruise at 110 m.p.h. on 30 h.p. per person, then an English private owner's two-seater is due giving us 90 m.p.h. cruising for 60 h.p. and a low landing speed of 35 m.p.h. The sacrifice of 20 m.p.h. gives a safer landing speed and better climb, as well as extra engine weight to allow it to be made more cheaply. For comfort it is doubtful if a two-cylinder will answer, because a large flywheel cannot be fitted to make it the smooth unit necessary. The two-stroke can hardly compete, because, in most cases, present examples give only the same cruising power per weight as converted car engines, which have the advantage of being more free from plug trouble and cooler-running as well as being cheaper. Car engines are becoming more suitable than they were for this type of work; for example, the V8 is a typical aircraft



The Pou, says our contributor, "is rather ugly and so full of wires you cannot get in." Here is the machine and its originator, M. Henri Mignet.

design, and it will be interesting to watch how some of the present conversions turn out. For the *Pou* the Ford Ten unit will probably be the most popular, because the pilot is so near the engine that noisy air-cooled o.h.v. types with open exhausts are almost out of the question — and I don't see how they can be silenced to such an extent that a hundred-mile trip is a pleasure.

For smooth running a minimum of four cylinders is essential, for lightness air cooling is necessary, and for reliability the four-stroke is, generally speaking, the only proved type.

I read a short while ago of a Czechoslovakian company producing a two-seater enclosed low-wing monoplane of very clean design, powered by a four-cylinder air-cooled horizontal twin of 45/50 h.p. It has a climb of 450 ft. per minute, top speed of 95 miles per hour, and is safe for simple aerobatics. They are testing it for 1,000 hours before production begins, and it will be produced at £240. The man behind it, incidentally, is a very successful business man. It struck me at the time as being the most likely type, and, allowing for increased cost of British labour, I do not see why it could not be produced in this country with a similar type of engine of 60 h.p. for about £300. The *Praga Baby* is another useful design, but why a two-cylinder unit? The same type two-cylinder is in the otherwise very attractive little *Aeronca*. In both cases the pilots are just behind the engine, while in the machine I mention the body is more like a *Miles Hawk* with the engine at the tip of the nose, well away from the pilot. Certainly, the view below is not as good as that of the *Aeronca*, but if we are to sit in front of the wing, why not put the engine behind, Drone-fashion? Then we get both view and comfort without sacrificing much speed.

For this field it is a delicate matter balancing the buying cost, h.p. and comfort; but for the sake of interest what is wrong with the type suggested, now that air travel is so much more common, and restrictions are being withdrawn to a reasonable extent? Wings are not very costly to produce. Sound, well-built, intermediate-type gliders are cheap enough, while a four-cylinder horizontally opposed four-stroke should be much cheaper than a radial. Whatever else is necessary, I believe the first machine to supply the following *desiderata* really cheaply will have a big sale: a 30 m.p.h. landing speed; 90 m.p.h. cruising



The *Praga Baby*, another of the light, low-priced economical machines referred to by the writer of the article.

speed to guarantee 60 m.p.h. against a 30 m.p.h. head wind; four cylinders as far away as possible; a simple, clean design for efficiency and good looks.

Motor cars run very well with large engines, and also with two cylinders and even with two-stroke engines, but away from the track you hardly find the twins. There are a thousand four-cylinder engines to every two-cylinder job, and as for the two-stroke it is about 10,000 to 1. I mention this because it is a pity to go through the whole trial and error business again if it can be avoided. The people who buy cars are the people who will buy planes, and if they refuse the cheapest method of propulsion on the road on account of the disadvantages of the type they are unlikely to sign away cheques in the second sphere.

Pou owners (and I am one) will put up with a lot of disadvantages because enthusiasts come under a different heading altogether. The *Pou* is rather ugly, and so full of wires you can hardly get in, but, because of its cheapness, it will be the means of getting into the air many who would normally stay on the ground for a long time to come. It will probably stay and thrive until something equally cheap takes its place. I am hoping that one of the manufacturers, brought into the trade by its publicity, will turn his hand to a two-seater on the lines mentioned. I remember seeing illustrated a similar single-seater produced by an English manager of a Belgian firm, powered by a Douglas engine, and thinking what a nice job it would be with a more normal power at its nose. Perhaps others have similar ideas. I have never forgotten the first time I went up in a typical club two-seater of a popular type. Apart from the thrill of a new sensation, the terrible row, vibration, and general discomfort was particularly noticeable, but now I more or less expect that sort of thing. Anyone less interested would dismiss air travel as a doubtful blessing.

Our own air lines attract customers by placing their engines in the wings, thus making the cabins vibration-free and quiet. How would their sales have gone on if the old-type noisy machines were still employed?



"If we are to sit in front of the wing, why not put the engine behind, Drone-fashion?"

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS



FURTHER FOOD FOR ARGUMENT on the eternal topic of the flight-path of bombs is provided by this remarkable picture of a Curtiss bomber in action

A Studious Mission

Twenty-five German officers are on their way to Tokio to study military aviation in Japan.

Greek Tutors

Thirty Avro Tutor training biplanes similar to those used by the R.A.F. have been ordered by the Greek Government.

Bother at Bleriot's

It is reported that the temporary closing of the Bleriot works is due to the delay of the French Air Ministry in paying for work done.

Decoration at Rio

In recognition of her recent South Atlantic flight, Miss Jean Batten has been invested by President Vargas with the Order of Cruzeiro, being the second woman to receive this honour.

Dorset Protests

Dorset County Council have decided to protest against the proposal of the Air Ministry to take over land at Woodsford, belonging to Lord Ilchester, for an aerodrome.

A Service Show

Exhibits supplied by the Army, Navy and R.A.F. will be on view at the Schoolboys' Own Exhibition which is to be held next year, from January 1-11, at the Imperial Institute, South Kensington.

Twenty-five Years Ago

(From "Flight" of November 26, 1910)

"Aeroplane Building and Flying Society.—The gliding hill has supplied enterprising members with a new sensation, a flight down the cables on the trolley being a very exhilarating experience; almost as good as flying, and very good practice for budding aviators."



BEING ILL IN COMFORT: The Croydon demonstration of the D.H. Dragon which, as described on p. 560, has been specially fitted up for permanent civil ambulance work by Air Dispatch Ltd.

Dig in the Ribs

Between Sydney and Brisbane a commercial machine struck a hawk with such force that the bird crashed through the fabric of a wing and well into the framework. The pilot was unaware of the collision until after he had landed.

Twin-Rolls Fokkers

The Dutch Government, it is reported, has ordered a number of twin-engined 233 m.p.h. military monoplanes for which Rolls-Royce engines are specified. Possibly these machines are of the T.V. type, which is in the fighter-bomber category.

The Douglas-Pennant Case

During the war the Hon. Violet Douglas-Pennant was dismissed from the position of Commandant of the Women's Royal Air Force, and since then there have been many demands to have the case reopened. Another petition to the same effect has recently been addressed to the Prime Minister, but Mr. Baldwin has declined to take any action.

Social Climber

Vladimir Kokinaki, Soviet test pilot and former stevedore, claims to have taken a single-seater up to 47,812 feet. The Italian, Donati, who holds the official world's altitude record for aeroplanes, made 47,360 feet. Kokinaki carried sufficient fuel only to "top" this figure, and landed with empty tanks.

A Two-bank Wolseley

The development programme of Wolseley Aero Engines, Ltd., includes the production of a two-bank radial engine supercharged to give 565 h.p. at 6,000 ft. This unit will be known as the Gemini. Other new types will be the Scorpio II (250 h.p. at 5,000 ft.), the Leo (280 h.p. at 6,000 ft.), and the Libra (390 h.p. at 6,000 ft.).



SOLELY for SURVEY

The Koolhoven F.K.49 for the Dutch Government : Dark Room on Board

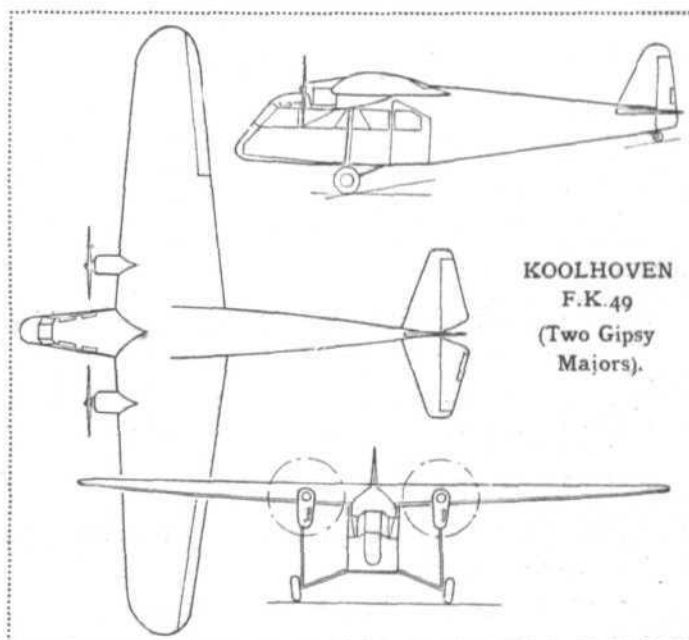
AN order has been placed by the Dutch Government with N.V. Koolhoven-Vliegtuigen, Rotterdam, for a twin-engine high-wing monoplane to be used for survey work.

Its cantilever wooden wing is attached to the fuselage by four nickel-steel bolts, the wing itself being built up on two box spars with silver spruce flanges, plywood webs and plywood ribs, the whole being covered with plywood. Identical construction is used for the ailerons, which are operated differentially and are statically balanced.

A fabric-covered structure, the fuselage is of welded steel tubes. The tail unit is built up from steel tubes with ribs of sheet metal, the covering being of fabric. A fixed fin and a trimming tab on the rudder are features and the tail plane can be adjusted on the ground. The elevator trimming tab is adjustable by the pilot during flight.

Two Gipsy Major engines are fitted, these being built into the leading edge of the wing. The nacelles behind the engines are fabric-covered. Two welded aluminium sheet fuel tanks, each feeding one engine, are placed between the spars outboard of the engines. Each engine has two A.C. fuel pumps and all pipes are of the flexible type. Two oil tanks are placed behind the power units and are cooled by the air forced through the engine cowlings.

The pilots are placed in the nose, permitting an excellent outlook. Windows of unbreakable glass are provided in their cabin, one of them being equipped with a sliding panel in case of bad weather. An electric windscreen wiper is also included. The commander, seated at the rear of the cabin, communicates with the pilots by means of a telephone. A dark room is provided, the wall between the cabin and the dark room being fitted with a small lock which makes it possible to pass the plate holders without any daylight entering the dark room. Wooden panels form the floor, and the



view-finder, the special drift indicator, and the cameras themselves can be placed in special openings which have appropriate coverings when not in use.

At an all up weight of 4,673lb. the F.K.49 has a maximum speed of 119 m.p.h. at sea level. Its service ceiling is 13,100ft., and with full load the take-off run is 689ft.

A.A. ARMAMENT AFLOAT

HM.S. *Warspite*, a battleship of the Queen Elizabeth class now being reconstructed at Portsmouth, will, I understand (writes Hector C. Bywater, Naval Correspondent of the *Daily Telegraph*), be the first ship in the Navy to mount eight anti-aircraft guns of 4 in. or heavier calibre.

Before undergoing her present refit she carried only four 4 in. A.A. guns. This has been, up to now, the standard air defence armament of all our capital ships except *Nelson* and *Rodney*, which have six 4.7 in. guns apiece, and *Hood*, which has two 4.7 in. and four 4 in.

Eventually the four other Queen Elizabeths, the five Royal Sovereigns, and the battle cruisers *Renown* and *Repulse* are to be equipped with eight 4 in. or bigger A.A. guns, in addition to heavy and light machine-guns.

This increased armament of high-angle guns is part of the Government's plans for making our warships less vulnerable.

I understand, also, that the process of modernisation includes the provision of extra armour protection to keep out bombs. The bulges with which most of our capital ships are already fitted are considered to be an effective defence against torpedoes.

It is now known that the new cruisers *Southampton* and *Newcastle*, which are due to be launched early next year, are

to mount only four 4 in. A.A. guns. It is possible, however, that the main armament of twelve 6 in. guns can also be brought into play against low-flying aircraft.

The 6 in. guns of *Nelson* and *Rodney* can be elevated up to 60 degrees, and able, therefore, to fire at air targets.

Retractable Undercarriages

NEXT Monday, December 2nd, 1935, at 6 p.m., Mr. G. H. Dowty, M.I.Ae.E., A.F.R.Ae.S., will lecture before the R.Ae.S. on "Retractable Undercarriages." The lecture will be one of the most comprehensive reviews of the work that has been done on retractable undercarriages in many countries. Mr. Dowty will also discuss in considerable detail the advantages and disadvantages of the various retractable systems that have been and are being used. He is, of course, the best-known authority on this subject in this country. His lecture will be illustrated with over fifty lantern slides, and will be delivered in the Lecture Hall of the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2. Visitors will only be admitted by tickets, obtainable through a member of the Society.

Private Flying



Topics of the Day

Crowded Aerodromes

NOT so long ago I had a taste of really crowded air conditions. The majority of pilots, whether of amateur or professional status, are accustomed nowadays to the need for continued watchfulness at the bigger airports, but the amateur pilot, at least, does not yet consider it necessary to hold rigidly to the various rules of procedure designed for such conditions.

On this particular occasion I was practising approaches and landings with a cabin type of which I had had no extensive experience, and with me, on the ground or in the air, there were a dozen aeroplanes of a very different type.

Almost without exception the pilots of these machines were pupils practising landings either with or without instructors, and both the approach path and the aerodrome itself were positively littered with training machines. At one time there were so many taxiing aeroplanes on the ground that there was no room in which to land safely, and at another four machines were coming in to land alongside my machine, with three others on the ground in different positions, the pilots of which had stopped according to the rules.

Rules to be Broken

THE unwritten law which requires taxiing pilots to wait and watch any other approaching or landing machines is a necessary and excellent one, but there are times when continued movement might be to the advantage of everyone.

In other words, if, while waiting, a pilot notices that a landing aeroplane is quite obviously about to touch down on one side or the other, it would help him if the grounded pilot turned and taxied farther away. Rules, in fact, are made to be broken by people who really know what they are doing. The "book," in any case, merely explains the necessity of keeping out of the way of the landing machine.

At the risk of being wearisome it might be as well to summarise some of the more important air traffic regulations which apply largely in the case of aerodromes where a number of machines are making circuits.

If, while making an approach, you see a machine on your right, it is your responsibility to keep out of its way unless this machine is at a perceptibly greater height. You must land or take off from the right side of any other machines on the ground, whether these have already landed or are about to take off, and if another pilot opens up before you he must be allowed to get clear of the aerodrome before you push the throttle open.

It is all very simple if you remember that, if you want to be on the right side of the law, always be on the right side of any other machines. But, as I've said before, rules are made to be broken—when necessary. It hardly helps to be entirely right but completely dead.

The Problem of Visibility

ANOTHER danger concerned with an overcrowded area was brought out particularly well on that day. I was flying an aeroplane which has an excellent view forward and a fair view to the sides so long as the roof window is used during turns, but with absolutely no rearward view. All the other people in the air were flying machines in which the forward view is comparatively poor, the view at the side is excellent for the pupil if not for the instructor, and the rearward view is quite good if one is prepared to suffer a strained neck enwrapped as one is in an aerobatic straightjacket.

The period of metamorphosis between the use of conventional biplanes for training or by private owners and the use of cabin, or even of pusher machines (disregarding the commercial machine's more or less standardised field of pilot's view), is, perhaps, going to be a mildly dangerous one. Nevertheless, it might logically be pointed out that the forward view is by far the most important, and that, if 60 per cent. of the machines have this, the air will be safer than when none had it.

While shooting around in this cabin machine I certainly felt as a one-eyed man might have felt in the country of the blind, but that did not prevent occasional mental discomfort at the thought of a machine bearing down on me from behind at a coarser angle of glide and with little or no forward visibility.

More and More

IT is possible that the number of persons in this country alone who are building or have built *Poux* has now reached three figures. Certainly the second edition of M. Mignet's book is still selling very well indeed, and there is hardly a day on which news of another amateur constructor does not appear in one form or another. One enthusiast is taking a *Pou* over to the States.

A fortnight ago two reasonably experienced aeroplane pilots went more or less straight off on Mr. Appleby's *Pou* without coming to any harm, but there is little doubt that the safest way of dealing with this machine is to follow M. Mignet's advice and to practise on the ground. A *Pou* is the safest thing in the world so long as it is correctly rigged and once it is in the air. Everybody will explain that the take-off is the difficult part, and that a *Pou* should be held down until it has plenty of flying speed. Swinging and porpoising appear to be the major troubles.

Since the most experienced pilot has still to learn to use the stick for directional control on the ground, he is little better off than the absolute novice when in charge of a *Pou* for the first time. Furthermore, the fuselage angle varies very little between the climb and the glide, so that the newcomer must judge the speed carefully. Mignet's constant advice is: "Fly on the A.S.I."

INDICATOR.

FROM the CLUBS

Events and Activity at the Clubs and Schools

C.A.S.C.

Twelve members of the Civil Aviation Service Corps flew 7 hr. 20 min. dual, and 2 hr. 5 min. solo last Sunday. Mr. A. G. Turner has resumed flying after an absence of several months. Course cards for the Cambridge Aero Pilot's Certificate may be obtained from the Secretary.

REDHILL

Three members of the Redhill Flying Club—Messrs. D. Huxley, R. Stone, and S. F. Darby—have passed their "A" licence tests, and two blind flying certificates and one R/T licence have been obtained. The flying times for the week ended November 22 totalled 38 hr. 50 min.

ROYAL AIR FORCE

Air Chief Marshal Sir Edward L. Ellington, G.C.B., C.M.G., C.B.E., Air Vice-Marshal F. W. Bowhill, C.B., C.M.G., D.S.O., Air Vice-Marshal Cave-Browne-Cave, D.S.O., D.F.C., Group Capt. A. T. Harris, O.B.E., A.F.C., and F/O W. Courtenay, have recently joined the Royal Air Force Flying Club.

MIDLAND

The Midland Aero Club's third annual dance will be held at the Grosvenor Rooms at the Grand Hotel, Birmingham, on Friday, December 6, and all visitors will be made most welcome. During the fortnight ended November 21 the flying times at Castle Bromwich totalled 30 hr. 40 min. Mrs. V. Bartholomew has joined the Club as an ordinary member.

BRISTOL AND WESSEX

Members joining the Bristol and Wessex Aeroplane Club last week included Miss M. Mackenzie and Miss J. King. Mr. Rogers, of B.A.M. Co., again visited Bristol with an Eagle for demonstration and a further demonstration of the Swallow has been arranged for November 30.

The Club's first and second squash teams played the Clifton Club first and second teams on November 20. The Clifton Club won in each case, the results being 4-1 and 5-0.

NORFOLK AND NORWICH

During Capt. Collier's absence on sick leave, Mr. A. Kirkby has been acting as instructor, and two members—Messrs. A. L. Flowerdew and H. S. Whitworth—made their first solos last week.

The first of a series of Supper Dances will be held at the clubhouse on Friday, December 6. On Tuesday evening last a debate on "The Ideal Machine for Club Flying" was due to be held. This informal debate should assist the Club to decide on any new type of machine which they may purchase.

TOLLERTON

Owing to bad weather, flying was possible on only four days of last week at Tollerton. One new associate member has joined the Club. Mrs. K. H. Spafford and Mr. G. V. Simkins qualified for their "A" licences, and one licence was renewed.

The engineering department is being kept busy with repairs and C of A work, and, on the Club's social side, the parties and dances organised by Mrs. L. W. Hall continue to be popular. A Scavenger Hunt will be held on November 28 at the clubhouse.

BROOKLANDS

Although the weather has been so bad, three members of the Brooklands Flying Club—Mr. Duncan, and Messrs. Roberts and Dawson—managed to finish their tests and duly qualified for their "A" licences. Lord Montgomery, and Messrs. P. J. Greenside, Grant Forbes, Jun., and L. M. Cheer are on their way towards qualification.

On December 1 the first lecture of the new series will take place in the lecture room at 5 p.m., the subject being "Maps and their Conventional Signs."

CINQUE PORTS

Mr. G. F. Deane, of the ground staff, in accordance with the Club's policy that all members of the staff should be qualified pilots, has successfully completed the tests for his "A" licence. Mr. Ken Waller spent a few days at the Club in the middle of the week. Lympne, unlike Brooklands and Shoreham, has been free from floods and all the instructors are being kept busy. "QBI" conditions, however, caused several machines to break their journeys to Croydon at Lympne. The chief instructor, Mr. K. K. Brown, has been giving some night flying instruction.

Mr. O. V. Holms has been in France for the hearing of his legal case over a forced landing he made near Strasbourg earlier in the year. He flew to Lympne in his Puss Moth.

The next Club dance will be held on Friday, December 20, at the Leas Cliff Hall, Folkestone. Tickets are obtainable on application to the Secretary.

BENGAL

Although several regular flying members were away on the Pujah holidays during October, the flying times totalled 99 hr. 50 min. Two new members—Princess Ila Devi of Cooch Behar, and Mr. J. N. Chaudhuri—started instruction during the month, and the former made her first solo on October 27. Another first solo was Mr. H. Pohle, and Messrs. A. Metaxa and R. Pax passed their "A" licence tests.

READING

The Reading Club's first dance of the season is being held at the clubhouse on Saturday, November 30, at 8.30 p.m. Two first solos were made last week by Messrs. Carr and Galloway, and four new pupils joined the Club. Flying times totalled 46 hr.

Baron Van Hengal has taken delivery of his new Falcon Six, and it is being flown back to Vienna by Capt. Von Brumowski. The Reserve School is due to be opened on November 25.

HESTON

At Heston pupils obtain several hours' ground navigation instruction gratis and Capt. G. W. Ferguson, who teaches them, has evolved an original and successful method. He puts them in a real cockpit, which has been "sawed off" a real aeroplane, mounted on a pivot and fitted with a real compass and dummy instruments.

When a pupil makes his first solo at Heston, he has already a sound working knowledge of how to find his way in the air; and before, or just after, he obtains his licence, he has had an opportunity to do a practical test with Capt. Ferguson.

HANWORTH

The London Air Park Flying Club is now in possession of another machine, a Gipsy 11 Moth, which is being used for instruction, or may be hired out. Two new members have joined, and the flying times for last week totalled 20 hr. 35 min. Two Australian pilots who are now touring the aerodromes of Great Britain, spent last Saturday night at Hanworth with their machine.

Considerable interest has naturally been displayed in the American Vultee monoplane which is over in this country for demonstration purposes, and which is making Hanworth its headquarters. Illustrations of this machine may be found on pages 561 and 563.

HERTS AND ESSEX

The final of the "Janet Lady Brickwood" challenge cup competition was flown off on November 10 and won by Mr. S. Dack with Messrs. R. J. D. Drummond, and L. P. Walters as runners-up. During the fortnight ended November 20 club flying was seriously hampered by the prevailing bad weather, and the times totalled 75 hr. 5 min. Six new members joined and Mr. Homi Chothia passed his "B" licence proficiency test at Hendon.

All friends of the Club will be welcomed at the annual dinner and dance which will be held at the Park Lane Hotel on December 5. The Club's Miles Hawk has now been returned from Reading after overhaul, and recently the Jubilee Monospar and its homing device were demonstrated at Broxbourne.



"HOMING" TO THE BALTIC: Last Saturday Messrs. H. C. Macphail and R. Ker (right) took off from Hanworth with a Jubilee Monospar fitted with R.T.E. visual homing equipment for a European tour. They will visit Denmark, Sweden, Norway, Lithuania, Latvia, Estonia and Finland in the course of their tour.

Private Flying

SOUTH COAST

The airport restaurant at the new Shoreham aerodrome is now open. Last week bad weather held up instruction at the South Coast Flying Club, though a fair amount of advanced dual was possible. New members include Mr. Abell, and Mr. and Mrs. Mursell.

CAMBRIDGE

At Marshall's Flying School and the Cambridge Aero Club, 54 hr. flying were logged during the week ended November 23 despite bad weather, and two members passed their "A" licence tests. Mr. Le Breiully, who came over from Jersey to learn to fly as quickly as possible, started his training at 4.30 p.m. on November 15, and made his first solo on the afternoon of November 22, in spite of the fact that on three intervening days flying was practically impossible.

KENT

Improvements to the hangar and club room used by the Kent Flying Club have now been made in the shape of new electric light and central heating plant. Mr. Edwards and Miss Bennett have joined the Club, and Mr. Klein, who is working for his "B" licence, has just completed a 100 hours solo with the Club. Several members flew the new Super Drone when Mr. Kronfeld brought it along last week for demonstration purposes. The Club's Christmas supper will be held on Friday, December 13.

DUBLIN

During the last six months eight pupils of Dublin Air Ferries have obtained their "A" licences, and it is hoped that the total will reach ten before the end of the year. Last month the prevailing bad weather seriously interfered with flying, but Miss Kathleen and Miss Norah Wilson, have gone solo, and are now reaching the "A" licence stage. Five new members have joined the Club, including Mr. C. Kirkwood Hackett, who has put up a new record by going solo in less than three and a half hours.

Scott-engined "Pou" in the Air

IN a high wind and in the kind of visibility which kept the ordinary club machines in their hangars, Flt.-Lt. Cowell made the first flight with a Scott-engined *Pou* at Yeaton. The machine had been built by Mr. R. A. Vinter, of Shipley.

A Super Heck?

SOMETHING rather startling in the way of performance should be seen when Mr. Basil Henderson's Super Heck appears. This is to be fitted, we understand, with a moderately supercharged Armstrong Siddeley Cheetah engine.

In the meantime, quite a large batch of standard Hecks are going through at the Parnall works, and these will be variously engined with Gipsy Six and Wolsley Aries units.

Fuel for the Viceroy's Trophy

INTENDING competitors in the Viceroy's Challenge Trophy Air Race from Madras to Delhi, which is to be flown on February 14 and 15, 1936, should note that ordinary motor spirit is the only grade of fuel normally available at most of the aerodromes and landing grounds along the route. The reason for this is that, except at the main aerodromes on the trans-India airways' route there is, at present, no demand for special aviation fuels of high anti-knock value. If such fuels are required arrangements to supply them must be made by competitors themselves.

Given reasonable notice the Burmah-Shell Oil Storage and Distributing Co., of India, Ltd.—who stock special Aviation fuels in India for supply to the main air lines operating between Europe and the Far East—will do all in their power to place stocks into position in time for the race.

Poupils

IT is the intention of E. G. Perman and Co., Ltd., to offer flying instruction and facilities on *Poux* on payment of an annual subscription of £10. After this sum has been paid the only remaining expense will be that of petrol and oil, which works out at something like two shillings an hour.

In the event of a number of applications for *Pou* instruction and flying being received from a certain district, the company will send a *Pou* or *Poux* to a convenient flying field together with an instructor and mechanic. Should only a small number show interest, possibly a single machine would be sent, perhaps without an instructor, the enthusiasts making their own arrangements in this respect.

Those interested should communicate with E. G. Perman and Co., Ltd., 24, Brownlow Mews, London, W.C.1.

Obtaining the Gliding Subsidy

SINCE a number of people may be ignorant of the conditions on which the gliding subsidy may be claimed, here, briefly, are the facts:

The subsidy is available to assist any club or amalgamation of clubs that can train new glider pilots. The simple conditions are: (1) The liability of club members must be limited to their club dues; (2) chief instructors and ground engineers must be competent; (3) grounds used must be suitable for gliding and soaring and the clubs hold tenancies for not less than five years.

Then the Gliding Subsidy Trustees are able to give assistance up to 70 per cent. of the cost of grounds, ground improvement and hangarage, and up to 50 per cent. of the cost of training machines. Claims must be made to the British Gliding Association, Ltd., 66, Victoria Street, S.W.1.

The Perth School

BUILDINGS are already well advanced on the new Perth municipal aerodrome, where Airwork, Ltd., is opening a Government civil flying training school on January 27. The six pupils' cottages, each of which will accommodate five, are nearly completed. In addition, a terminal building with ante-room, mess-room and offices, a hangar, and two staff houses for the manager and chief ground instructor are under construction. The buildings are to be completed by January 20. The architects, Messrs. Norman, Muntz and Dawbarn, were also responsible for the layout of the aerodrome, which comprises 85 acres, with a minimum runway in any direction of 700 yards. The grass is growing well, and sixty-five acres will be ready for use on the opening day.

The school is initially to be equipped with twenty Tiger Moths. Flt. Lt. C. Walter, who has been appointed chief instructor, qualified as a pilot at Cranwell in April, 1918. He was demobilised in 1919 and rejoined the R.A.F. in 1925. He is now an instructor of C.F.S. "A" Category, with over 2,000 hours' flying experience. There will be ten other instructors, and the chief ground instructor will be Mr. H. W. Sims-White. The airport manager on behalf of the Perth Corporation and Airwork, Ltd., will be Mr. P. J. B. Perkins, who has for over a year been assistant to the general manager at Heston.

The activities of the new Perth aerodrome will not be confined to the school, and it will be available for public use, while tentative plans are on foot for the formation of a local flying club.

Orthodoxy Triumphs

SIR JOHN CARTEN, designer of the engine, and Mr. F. D. Bradbrooke both made successful flights this week with Mr. S. V. Appleby's *Pou-du-Ciel*. They took off without any preliminary straight flights to get accustomed to the control. Mr. Bradbrooke unstuck a little prematurely and Sir John (who has not flown anything for months) had a slight tendency to over-control, but both made good landings and were pleased with the experiment, which proves that a well-built *Pou* is not necessarily fatal in the hands of orthodox pilots! Mr. Appleby is, however, of opinion that amateur constructors would be wise to obtain the services of a *Pou* expert for initial inspection and the first test flight, and the Air League will, in fact, undertake this function.

The Carden-Appleby *Pou* now flies nearly every day and has ceased to be regarded with any particular anxiety or alarm. It was demonstrated at Hanworth some days ago, and a four-gallon petrol tank designed by Airwork, and fitted in the wing, should increase the range to two and a-half hours and permit of demonstrations farther afield. The two-foot pitch airscrew previously fitted gave a top speed of 68 m.p.h. A very much coarser pitch gave exactly the same results, but something between the two has unexpectedly increased the speed to 75 m.p.h. at 3,500 revs, equivalent to 48 m.p.h. on the corresponding road motor. The cruising speed at 3,000 revs is given as 60 m.p.h. It is understood that public interest in the Carden engine has already exceeded the designer's expectations, and that substantial orders are in hand.

Another improvement now on the way is the fitting of push-rods to replace the inner pair of control wires. This is expected to relieve the wing of certain torsional stresses. Although the spring which exerts a forward pull on the stick will be eliminated in the rigid system of control, the stick will still come forward when released, owing to the fact that the wing is pivoted in front of the centre of pressure. It should in fairness be remarked that a writer in *L'Aero* reports unfavourably upon the same experiment, which in his case led to a slight accident. *Les Ailes*, on the contrary, speaks well of the system, and British "Pouducielistes" will look to the Carden-Appleby combination for a judgment on this point.

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS



AIR MINISTRY ANNOUNCEMENTS

QUETTA EARTHQUAKE HONOURS

The following were among the Honours conferred by the King in recognition of gallant and distinguished conduct during the Quetta earthquake and the relief work afterwards. The Kaiser-i-Hind medals are awarded by the Viceroy of India.

Medal of the Order of British India (Military Division)

L.A./C. Joseph John Wickenden, No. 5 (A.C.) Squadron.

Kaiser-i-Hind Silver Medal.

Mrs. Gladys Lily Ellen (wife of Sqn. Ldr. C. N. Ellen, D.F.C., No. 5 (A.C.) Squadron).

Mrs. Edith Muriel Macfarlane (wife of Sqn. Ldr. R. M. C. Macfarlane, M.C., No. 31 (A.C.) Squadron).

Kaiser-i-Hind Bronze Medal.

Mrs. Aldyth Rosamund Chisman (wife of Flt. Lt. L. de V. Chisman, No. 31 (A.C.) Squadron).

Mrs. Nellie Louise Frost (wife of Cpl. T. F. Frost, No. 31 (A.C.) Squadron).

Mrs. Kathleen Joyce Petersen (wife of Sgt. N. E. Petersen, No. 31 (A.C.) Squadron).

FORMATION OF THE SCHOOL OF AIR NAVIGATION, MANSTON

The Air Navigation School at Andover and the Navigation School at Calshot will move to Manston by January 6, 1936, and re-form on that date as the School of Air Navigation. The School of Air Navigation will undertake the conduct of all air navigation courses, including the Specialist "N" course. It will also be responsible for the air navigation and reconnaissance training of pilots for the general reconnaissance and flying boat squadrons. The school will come under the A.O.C., Inland Area, for administration and directly under the Air Ministry (Director of Training) for training.

MOVES OF SQUADRONS

No. 9 (Bomber) Squadron will move from Andover to Aldergrove. The move is to be completed by January 28.

No. 18 (Bomber) Squadron will move from Upper Heyford to Bircham Newton. The move is to be completed by January 7.

No. 57 (Bomber) Squadron will move from Upper Heyford to Catterick. The move is to be completed by February 4. The unit will remain under the command of the A.O.C.-in-C., Air Defence of Great Britain, in the Central Area.

Nos. 58 and 215 (Bomber) Squadrons will move from Worthy Down to Upper Heyford. The move is to be completed by January 14. The units will remain under the command of the A.O.C., Western Area.

FORMATION OF STATION HEADQUARTERS

A station headquarters will form at Mildenhall on December 31. A station headquarters will form at Catterick on January 8.

R.A.F. BOXING ASSOCIATION

The match, R.A.F. Officers v. Oxford University, arranged for November 22, has been postponed until February. The date will be notified later.

No. 48 (GENERAL RECONNAISSANCE) SQUADRON

No. 48 (General Reconnaissance) Squadron will move from Bicester to Manston. The move is to be completed by December 16, 1935. On the completion of the move, the unit will be placed under the command of the A.O.C., Inland Area. On the formation of the School of Air Navigation at Manston on January 6, 1936, No. 48 (General Reconnaissance) Squadron will be placed under the officer commanding that unit for all purposes.

FORMATION OF NEW SQUADRONS

Nos. 21 (Bomber) and 34 (Bomber) Squadrons will form at Bircham Newton on December 3, 1935. The squadrons will be equipped with light bomber type of aircraft and come under the command of the A.O.C.-in-C., Air Defence of Great Britain, in the Central Area.

No. 83 (Bomber) Squadron will form at Upper Heyford on January 14.

No. 104 (Bomber) Squadron will form at Abingdon on January 7.

These units will be equipped with light bomber type aircraft and be placed under the command of the A.O.C.-in-C., Air Defence of Great Britain, in the Central Area.

MATES—ISSUE OF DUTY PAY

It has been decided that mates undergoing training as fitter (aero-engine), metal rigger, flight mechanic or flight rigger in consequence of the temporary modification of aircraft maintenance policy, may continue to receive, during such training, duty pay as mates. This pay may also be issued, as from the date of qualification as mate, to airmen not posted to a unit on so qualifying but forthwith placed under training in one of the trades mentioned above.

R.A.F. BENEVOLENT FUND

The usual meeting of the Grants Committee was held at Iddesleigh House, on November 18. Air Comdre. B. C. H. Drew, C.M.G., C.B.E., was in the chair, and the other members present were: Mrs. L. M. K. Pratt Barlow, O.B.E., Sqn. Ldr. C. E. H. James, M.C., and A.V.-M. C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C. The Committee made grants to the amount of £226 5s. 6d. The next meeting was fixed for December 9.

NIGHT FLYING

Night flying without navigation lights will be carried out by R.A.F. aircraft, whilst co-operating with the School of Electric Lighting, Royal Engineers, Gosport, in an area bounded by a circle, centre at Fareham, with a radius of six miles, from December 11 to 13, from 1800 to 2030 hrs. on each day. Aircraft will not exhibit navigation lights whilst flying between 3,000 and 10,000 feet, unless other aircraft are observed in the vicinity.

FOREIGN OFFICER ATTACHED

Capt. Arimori, of the Japanese Military Air Service, is attached to the R.A.F. Station, Abingdon, from November 12 to December 9.

INDIAN ORDERS

The King-Emperor has approved of an increase in the number of members to be appointed to the Orders of the Star of India and of the Indian Empire in order to make it possible for more officers of the Navy, Army, and Royal Air Force to be appointed to them.

WORTH KEEPING!

NEXT week's issue of "Flight"—the annual **BRITISH AIRCRAFT INDUSTRY NUMBER**—will form a valuable work of reference.

NEXT THURSDAY **FLIGHT** DECEMBER 5.

ROYAL AIR FORCE GAZETTE

London Gazette, November 19, 1935

General Duties Branch

K. E. Kennedy is granted a short service commission as Acting Pilot Officer on probation with effect from and with seniority of November 4.

The following are granted short service commissions as Acting Pilot Officers on probation with effect from and with seniority of November 6:—D. L. Amlot, H. W. Bolingbroke, H. F. Bromwich, H. G. L. A. Brooking, M. H. T. Cooke, V. D. H. Elkington, J. L. Forbes, E. Graham, F. E. R. King, W. I. McConnell, D. S. Macdonald, J. N. Mahler, F. M. Milligan, G. T. Openshaw, J. A. Richards, D. E. C. Trench.

Lt. H. L. Maxwell (The Northamptonshire Regt.) is granted a temporary commission, as a Flying Officer, on being seconded for duty with the R.A.F., with effect from September 16. (Substituted for the notification in the *Gazette* of October 1); Lt. Cdr. S. Borrett, R.N., is reattached to the R.A.F., as a Flying Officer, with effect from October 10 and with seniority of April 19, 1927; Lt. (now Lt.-Cdr.) H. D. Barlow, R.N., is reattached to the R.A.F. as a Flying Officer, with effect from September 17, and relinquishes his temporary commission on return to Naval duty (September 27). (Substituted for the notification in the *Gazette* of October 15.)

The following Flying Officers are promoted to the rank of Flight Lieutenant:—K. B. B. Cross, R. B. Lees (October 13).

The following Pilot Officers are promoted to the rank of Flying Officer:—S. G. Birch (October 19); C. G. R. Lewis, A. F. Johnson, A. W. B. Barrett (October 30).

Flt. Lt. J. F. Moir is transferred to the Reserve Class A (November 14).

Medical Branch

Flt. Lt. (Quartermaster) P. H. Musgrave is promoted to the rank of Squadron Leader (Quartermaster) (November 3).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers

General Duties Branch

The following Pilot Officers are promoted to the rank of Flying Officer:—R. A. Farquhar (October 5); A. J. Edmunds, P. J. Field-Richards, C. R. S. Hayne, C. F. Hughesdon, H. R. Kirkman, W. M. Morris, H. R. Wheeler (October 24).

F/O. N. J. Nock is transferred from Class A to Class C (May 24); F/O. G. K. Murray is transferred from Class A A(ii) to Class C (November 10).

The following relinquish their commissions on appointment to short service commissions in the Royal Air Force:—F/O. K. E. Kennedy (November 4); P/O. H. F. Bromwich (November 6).

F/O. P. H. Macmillan relinquishes his commission on appointment to a commission in the Territorial Army (July 5).

AUXILIARY AIR FORCE

General Duties Branch

No. 600 (CITY OF LONDON) (FIGHTER) SQUADRON.—The following Pilot Officers are promoted to the rank of Flying Officer:—R. P. Braun (September 19); R. G. Kellett (September 20). (Substituted for the notification in the *Gazette* of October 22.)

No. 607 (COUNTY OF DURHAM) (BOMBER) SQUADRON.—P/O. J. Sample is promoted to the rank of Flying Officer (October 27).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commander.—L. G. S. Payne, M.C., A.F.C., to D.O.I. Dept. of C.A.S., Air Ministry, vice Group Capt. L. L. MacLean, 21.10.35.

Squadron Leader (Acting Wing Commander).—R. P. M. Whitham, O.B.E., M.C., to R.A.F. Staff College, Andover; for duty as Instructor vice Wing Cdr. W. R. D. Acland, D.F.C., A.F.C., 12.11.35.

Squadron Leaders.—J. Bussey, to No. 70 (B.T.) Squadron, Hinaidi, Iraq; for flying duties vice Sqn. Ldr. W. M. Yool, 9.11.35. J. T. Paine, to Headquarters, R.A.F., Iraq, Hinaidi; for duty as Chief Signals Officer vice Sqn. Ldr., C. K. Chandler, M.B.E., 9.11.35. P. J. Barnett, M.C., to No. 1 Flying Training School, Leuchars; for Armament duties vice Sqn. Ldr. I. Cullen, M.B.E., A.F.C., 11.11.35. C. N. Ellen, D.F.C., to No. 22 Group Headquarters, South Farnborough, for Signals duties vice Sqn. Ldr. C. P. Brown, D.F.C., 10.11.35.

Squadron Leaders.—J. L. Airey, D.F.C., to No. 31 (Army Co-operation) Squadron, Karachi, India; to command vice Sqn. Ldr. R. M. C. Macfarlane, M.C., 19.10.35. A. D. Rogers, A.F.C., to No. 99 (B) Squadron, Mildenhall; for flying duties, 18.11.35.

Flight Lieutenants.—J. B. Barrett, to No. 55 (B) Squadron, Hinaidi, Iraq, 9.11.35. L. B. Daggan, to Headquarters, R.A.F., Iraq, Hinaidi, 9.11.35. H. B. Collins, to Superintendent of R.A.F. Reserve, Hendon, 11.11.35. L. W. Dickens, to R.A.F. College, Cranwell, 12.11.35. K. S. Brake, to No. 802 (F.F.) Squadron, 22.10.35. N. C. Pleasance, to No. 11 (B) Squadron, Risalpur, India, 21.10.35.

Flight Lieutenant.—J. Warburton, to No. 26 (Army Co-operation) Squadron, Catterick, 19.11.35.

Flying Officers.—R. G. M. Apthorp, to No. 24 (Communications) Squadron, Northolt, 18.11.35. G. L. Menzies, to No. 56 (F) Squadron, North Weald, 18.11.35.

Pilot Officers.—T. G. W. Appleby, S. E. F. Curry, G. D. Garvin, J. N. Glover, W. A. L. Locker, K. J. Mellor, C. H. Mitchell, J. J. Raine, J. B. Voyce, all to No. 70 (B.T.) Squadron, Hinaidi, 9.11.35. H. H. Peck, to No. 6 Flying Training School, Netheravon, 21.10.35.

Pilot Officers.—F. H. Roberts, to No. 100 (B.T.) Squadron, Singapore, 15.11.35. W. S. Gardner, to No. 7 (B) Squadron, Worthy Down; on appointment to a short service commission as Pilot Officer on probation, 13.11.35.

Acting Pilot Officers.—C. F. King, J. Mercer, both to No. 70 (B.T.) Squadron, Hinaidi, 9.11.35.

Commissioned Armament Officers

Flying Officer.—J. Heffernan, to Air Armament School, Eastchurch, 18.11.35.

Special Reserve

Pilot Officer.—G. L. M. Malcomson, to No. 502 (Ulster) (Bomber) Squadron, Aldergrove; on appointment to a commission as Pilot Officer on probation, 5.10.35.

Stores Branch

Squadron Leader.—A. Garrity, to D. of E. Dept. of A.M.S.O., Air Ministry; for Equipment (Stores) Staff duties in Co-ordination Section, 14.11.35.

Flying Officer.—A. Wall, to Supplies and Transport Services, Iraq, 9.11.35.

Accountant Branch

Pilot Officer.—W. G. Thorn, to Marine Aircraft Experimental Establishment, Felixstowe, 12.11.35.

Medical Branch

Wing Commander.—A. F. Rook, to R.A.F. General Hospital, Palestine and Transjordan, Sarafand, for duty as Commanding Officer and Senior Medical Officer, Palestine and Transjordan, vice Wing Cdr. J. Rothwell, 27.10.35.

Squadron Leader.—J. D'I. Rear, to R.A.F. General Hospital, Hinaidi, Iraq; for duty as Medical Officer, 9.11.35.

Flight Lieutenants.—J. S. Cars'aw, to Aircraft Depot, Karachi, India, 5.10.35. R. E. W. Fisher, to No. 31 (A.C.) Squadron, Karachi, India, 5.10.35. H. F. Harvey, to No. 5 (Army Co-operation) Squadron, Chaklala, India, 9.10.35.

Dental Branch

Flight Lieutenant.—R. H. Marthews, to R.A.F. General Hospital, Hinaidi, Iraq, 9.11.35.

A VISCOUNTY FOR SIR PHILIP CUNLIFFE-LISTER

THE following official announcement was issued from 10, Downing Street:—

The King has been pleased to approve that the dignity of a Viscounty of the United Kingdom be conferred upon the Right Hon. Sir Philip Cunliffe-Lister, G.B.E., M.C., and upon the Right Hon. Sir Bolton Eyres Monsell, G.B.E.

Thus there is confirmation of the general belief that both

the Secretary of State for Air and the First Lord of the Admiralty will continue their Ministerial duties, although they did not offer themselves for re-election to the House of Commons.

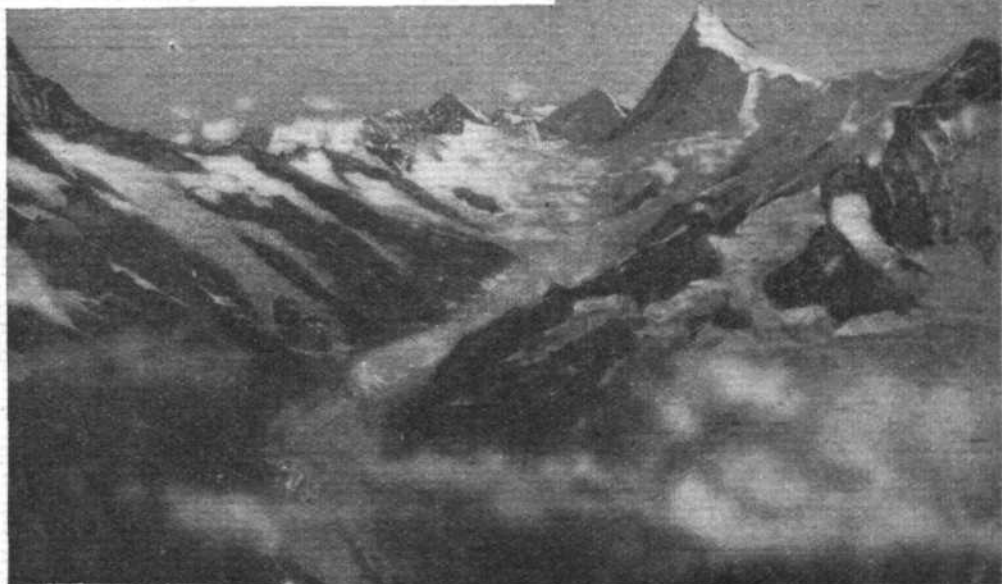
Sir Philip Cunliffe-Lister is to remain at the Air Ministry, and in the House of Commons he leaves the Department in the hands of Sir Philip Sassoon, who has been Secretary to the Ministry throughout the life of the National Government.

FOUR HOURS over the HIGH ALPS



Mr. Douglas Fawcett, Septuagenarian Sportsman, Describes Another of His Alpine Flights in a Small Single-engined Monoplane

IN an article in *Flight* of March 7 last, "Mountaineering by Monoplane," Mr. Douglas Fawcett described a flight which he made in a Leopard Moth from Berne to Venice and back. In this article he describes another such flight, this time from Berne to Innsbrück, in the Tyrol. Mr. Fawcett, who has lived for the greater part of twenty-five years in Switzerland, is an expert mountaineer, but the most remarkable fact is that he is carrying out his flying—flying of a kind which many younger people might hesitate to undertake—at an age within a few months of seventy. He took his "A" licence at sixty-eight, and is shortly returning to England to polish up his aerobatics and blind flying! He is accompanied on many of his mountain flights by a friend, Mrs. Brodrick, who is as youthful as himself in spirit, though almost his rival in years.



Hardly the ideal terrain for forced landings—the Finsteraarhorn (14,050ft.) and the Eismeer, photographed by Mr. Fawcett from the Leopard Moth, which is seen above with his companion Mrs. Brodrick standing alongside.

HALF past eight on an autumn morning. The *bise* (north wind) is blowing mildly. A light mist floats above the lake of Thun, but east and south-east the Eiger, Monch, Jungfrau and other great peaks of the Oberland pierce a clear sapphire sky. Surely a promising day for one's last mountain flight of the season.

Ah! a telephone call Alpar Bern aerodrome reports fog over the Aar valley and various lakes, but adds that it seems low and local only. Excellent! Soon our car is purring up the hill and we are leaving Oberhofen for Belp, near Berne, best of all centres for those visitors who may desire to sample real mountaineering by aeroplane. Here we meet Herr Direktor Pillichody, the veteran pilot, take our seats in the Leopard Moth which has never once faltered during our many wanderings, nose into the wind and, taking off, swing eastward.

Prominent Landmarks

We are bound for Innsbrück, using valleys and low passes only as landmarks—flying among and over the mountains. So from the outset we climb continuously. We soon have the fog areas and mist zone below us, and climb through a cloudless sky with visibility of scores of miles in every direction, sunshine flooding mountains on which newly fallen snow marks the onset of winter. Navigation here, even in November, is easy—one steers by eye with only occasional glances at the map. In England it is tiresome to have to steer so often on a compass course while tied to that monotonous 2,000ft. level in order not

to falsify wind calculations. Here we go as we please; already we are over 9,000ft. up when leaving the Emmen-thal. We skirt the Brienzer Rothorn in view of the green Lake of Brienz, and indescribably superb are the mountain spectacles to right and left. We pass next between the Lake of Lungern and Meiringen in the Haslithal. This latter valley leads towards the famous Grimsel and Furka passes, Gletsch and the Rhône glacier, but this time we are not bound for Gletsch and, crossing anon the Dammastock, find ourselves at 12,000ft. or so looking down on Hospenthal, near the beginning of the St. Gotthard Pass, hard by which is a prohibited area which has to be avoided. We continue for some way in the direction of the Val Leventina, in which the Ticino river and St. Gotthard railway run towards Bellinzona and Italy. We then turn to the left, crossing the Lukmanier Pass, the sight of which recalls motor rambles. All the while the Leopard climbs.

It is cold—outside. Ice formation? None. The dry north wind is blowing; there is a slight haze showing in the originally clear sky, but no clouds are seen at our altitude at any point of the compass. Joy-fliers in the High Alps like the *bise*, as do mountaineers. We think twice about going up if the southerly *foehn* is threatening; we may be blown down into valleys, apart from the risk of the deposits of ice. When the *bise* rules, *alto-cumulus* and peak-streamers can ordinarily be dodged, and I have not noticed any icing trouble due to such manœuvres as circling for photographs round the top of

the Matterhorn through cloud. On another machine we had the A.S.I. venturi iced up when the *foehn* began to blow at 16,000ft., over Mt. Blanc. The wind was not strong, but it later caused a downward drop of the order of 650ft.

Bumps? None troubled us during the present flight, as fog below and the absence of cumulus clouds would suggest. The entire journey was as smooth as any round I can recall over Heston or Hatfield. But don't let any reader suppose that the High Alps are always thus amiable. His dream will pass! A day such as this is rare.

The Lukmanier Pass (I can sight its Swiss starting point, Disentis, very far away in the valley of the Vorder Rhine), the St. Bernardino and the Splügen are left behind and now we swing to the right and follow roughly the line of the Julier Pass to Silvaplana, at which point the Engadine is crossed and a course is steered to the left of two giants flown over by us last year—the Piz Palu and the Bernina (13,304ft.). The mountains between the upper Engadine and Austria seem without number, but who cares at a feast of beauty like this? As Lubbock says in his *Scenery of Switzerland*, it is "impossible to give any idea in words of the beauty of high snowfields"—and if as mountaineers we can say this, how much more enthusiastic shall we become as pilots! There is risk incurred in our wanderings, of course, but are not the best things often enjoyed only at their price?

Though the Leopard is moving at more than 100 m.p.h. it seems sometimes that progress is extremely slow. High speed high up is the most placid way of filling in time that

I know. After sighting Samaden, Zernetz and the Ofen Pass, I note that we are at about 14,250ft. and apparently travelling at perambulator rate—but the air speed indicator notifies its dissent!

All the Italian frontier on our far right is prohibited area up to the Brenner Pass which, over the innumerable peaks and snowfields, we reach at long last, enjoying a good look at this much discussed gap, about 5,000ft. high, in the Alps. On our left, thousands of feet below in the Inn Valley, I descry Innsbrück. The picture is magnificent. Innsbrück has an aerodrome and thus offers us what is probably the only inviting landing-place noted during our flight. But we are much too interested in the scenery of the High Alps to land.

We return to Belp by the route of the Engadine, Arlberg Pass and Lichtenstein, crossing then the Rhine Valley to the left of Coire and the Linthal over Glarus, leaving the great Glärnisch mountain on our left. The lakes of Constance and Zurich are cloud-roofed and we cannot land, as had been arranged, at St. Gall. Passing over the canton of Schwyz, we reach the Lake of Lucerne, nearly above Brunnen. The arm of the lake towards Flüelen ("Lake of Uri") is clear, but the rest cloud-roofed; the peak of the Rigi emerging from the smother like an island.

We leave Pilatus on our right and, crossing the Emmen-thal, find the Aar valley and our home aerodrome devoid of mist; and so our luck still holds.

In 3 hr. 55 min. we have covered 406 miles—an excellent average for our Leopard Moth when the climbing is taken into account.

Models Enthusiasts, Please Note

OWING to the reviews of aircraft, engines and accessories, which will occupy the major portion of the space in next week's issue of *Flight*—the British Aircraft Industry Number—the Models Page (which normally appears on the first Thursday in each month) will be held over until the following week's issue, December 12.

Merciful Rehearsal

HAVING received a steady flow of ambulance cases during the past two weeks, Air Dispatch, Ltd., of Croydon, has decided to institute a special Red Cross service and, under the auspices of the British Red Cross Society, are now running a Dragon solely as an ambulance. The machine is available both day and night, together with a fully qualified staff, and, on receipt of a telephone call, can be ready to leave for any destination within fifteen minutes. Included in the cost of the ambulance are the services of the trained nurse provided by

the British Red Cross and the transport of a doctor and relatives.

In the heated and well-ventilated cabin of the Dragon is a special bed which provides greater comfort for the patient than is possible with the ordinary stretcher. In conjunction with this is employed a special form of stretcher which, if necessary, allows the patient to be inverted—which is simpler than obtaining an aerobatic licence for the machine! A qualified nurse is in attendance in the aeroplane and in all conveyances to and from the aerodrome.

Lausanne, Plymouth and Liverpool have been among the recent destinations of the Air Dispatch ambulance, and for this week a journey to Nice has been booked.

A demonstration given at Croydon last Saturday represented what happened when a call was received at the aerodrome and when the Dragon arrived at its destination. Actually the time taken for the machine to get in the air after the alarm bell had been rung in the hangar was less than the quarter of an hour claimed.

Forthcoming Events

Club Secretaries and others are invited to send particulars of important fixtures for inclusion in the list.

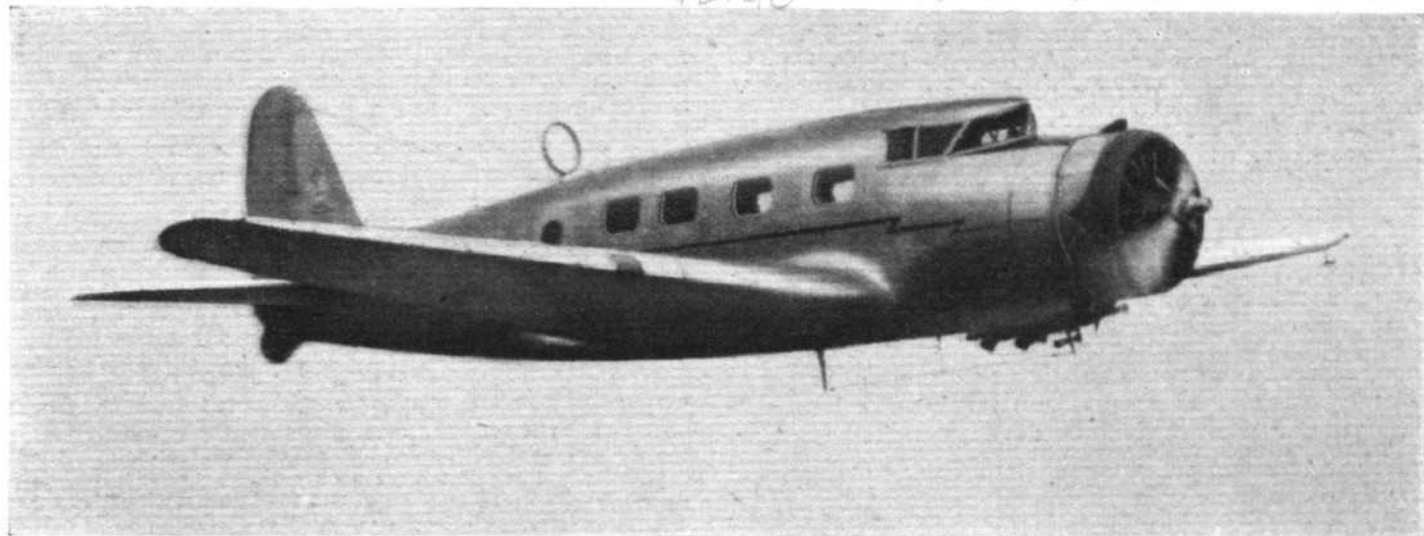
- Nov. 29. Yorkshire Aeroplane Club. Annual Ball, Hotel Majestic, Harrogate.
- Dec. 2. R.Ae.S. Lecture: "Undercarriage Design," by G. H. Dowty, 6 p.m., Institution of Electrical Engineers.
- Dec. 3. Chelsea College of Automobile and Aeronautical Engineering. Dinner Dance, Grosvenor House.
- Dec. 5. R.Ae.S. (Students' Section) Lecture: "Boundary Layer Theory," by Mr. H. Leaderman, 7 p.m., 7, Albemarle Street, London, W.1.
- Dec. 6. Hampshire Aeroplane Club: Tenth Annual Dinner and Dance, South Western Hotel, Southampton.
- Dec. 6. Contractors' Dinner, Martlesham Heath.
- Dec. 13. R.Ae.S. (Students' Section). Informal Supper, 9 p.m., Ship Inn, Gate Street, Kingsway, London.
- Dec. 16. R.Ae.S. Lecture: "Wireless and its Application to Commercial Aviation," by Capt. J. M. Furnival, 6 p.m., Institution of Electrical Engineers.
- Dec. 19. R.Ae.S. (Coventry Section) Lecture: "The Stratosphere," by Capt. J. Lawrence Pritchard, 8 p.m. Armstrong Siddeley Canteen.
- Dec. 20. London Aeroplane Club. Annual Ball, Park Lane Hotel, London.
- Dec. 21. Brooklands Aviation Ltd., Annual Dinner.

1936.

- Jan. 16. R.Ae.S. (Coventry Section) Lecture: "Development in Centrifugally Cast Piston Rings for Modern Aero Engines," by Mr. P. R. Twigger 8 p.m., Armstrong Siddeley Canteen.
- Jan. 22. Royal United Service Institution Lecture: "The Expansion of the Royal Air Force," by Air Marshal Sir C. L. N. Newall, at 3 p.m.
- Jan. 30 and 31. Aerodrome Owners Association: Annual Conference and Aerodrome Equipment Exhibition, British Industries House, Marble Arch, London.
- Feb. 12. Yorkshire Aviation Services Country Club. Dinner and Dance, 8 p.m., Grand Hotel, Harrogate.
- Feb. 20. R.Ae.S. (Coventry Section) Lecture: "Variable-pitch Propellers," by Mr. T. E. Beacham, 8 p.m., Armstrong Siddeley Canteen.
- Feb. 28. Bristol and Wessex Aeroplane Club: Annual Aviation Ball.
- Mar. 10. Royal United Service Institution Lecture: "The Development of Civil Aviation," by Lt. Col. F. C. Sheldermine, at 3 p.m.
- Mar. 19. R.Ae.S. (Coventry Section) Lecture: "Type-Testing an Aircraft," by Fit. Lt. Bulman, 8 p.m. Armstrong Siddeley Canteen.
- April 16. R.Ae.S. (Coventry Section) Lecture: "Aircraft Instruments," by Mr. J. E. Chorlton, 8 p.m. Armstrong Siddeley Canteen.
- May 15—June 1. Stockholm Aero Show.

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —



A VULTEE IN ENGLAND : The demonstration Vultee, which has been sent over here by Mr. Cord, being flown last Monday by Mr. Lee Smith at Hanworth, where it is being housed. (Flight photograph.)

THE WEEK AT CROYDON

A Real-Life Blind Landing : Using Alternative Airports : Discretion : Travelling Comfort

LAST week Croydon had more than a fair share of Q.B.I. conditions, and a German night freighter trundled through the airport fence in conditions of darkness and visibility which made it something of a miracle that the pilot could find the airport and land on it at all. Very little damage was done, and the matter was far less serious than it is when a train hits the buffers. Freighters, too, can take liberties which passenger-carrying aircraft cannot.

It is interesting that the pilot of this machine, who was, of course, invisible to the control tower officer—who merely heard a noise like a sardine-tin being thrown into an ash-can—was able to explain by short-wave wireless (his Lorenz equipment, presumably) exactly what had happened, thus saving a wild precautionary dash of fire engines and so forth across country in fog and darkness.

For some reason or other the newspapers are keenly interested when any air-line machine has failed to reach its terminus, not realising that alternative airports are deliberately used in certain weather conditions even though, apart from traffic hold-ups and consequent delay, it may be perfectly easy to get into Croydon.

Last week there was a case in which one machine got into Croydon in really bad weather, when long experience of the route and great skill enabled the pilot to do so safely. At the same time, there was another machine flying high over the fog bank in blue sky. This latter, seeing what it was like below, turned back when actually over Croydon and landed at an alternative airport. Comment on this incident, which I happened to overhear, was illuminating. One of the new probationary officers remarked, "That was a good show—getting in at Croydon in such weather." "Was it?" "answered an old hand, "perhaps so, but the pilot who went back put up a better show—as a commercial pilot."

One newspaper surpassed itself last week by announcing that an aeroplane had to land at an outlying aerodrome on account of the floods! One of the few virtues of this place, with its chalk subsoil, is that it never floods. Some people will tell you that all the surface water drains off into the import sheds.

When travelling in the big Imperial liners, in the K.L.M. Fokker 36 type, in the big Junkers or in the Sabena Savoia-Marchetti, one notices the warmth and comfort of the cabins, even when flying at a height which means that it is bitterly cold outside. Consider how long railways have been in exist-

ence, accumulating experience of how to treat travellers, and finally read this extract from a letter to a newspaper: "I shivered up to London on a recent wet and dreary afternoon in a first-class railway carriage, unheated and unlit. We stopped at stations which were brilliantly lit, but still no electric light appeared in the carriage."

I had a more amusing experience in an unheated railway carriage recently. The electric light was on but the glass shade was half full of water which swirled madly about, making the most amazing light patterns. One could not read, of course. I sighed for the civilised amenities of air travel—softly shaded lights amongst other things.

Air traffic companies have still much to learn about passenger-comfort, but they do take a great deal of trouble over it, and they have done wonders in a comparatively short time.

A Little Premature

There was great excitement at this Airport recently when one of the early morning newspaper machines for Paris announced that he would be landing at New Orleans. It is not considered in the best of good taste to carry newspapers intended for the Parisian breakfast table to the other side of the Atlantic without previously warning those concerned.

Olley Air Service have recently entertained a number of parties, each of fifty schoolboys or so, who have been shown round the Airport and given a short lecture on aviation before being taken for a flight. Amongst the interested local schools are Whitgift and Caterham.

Troubles with bank rates and so on have meant business for some people. Recently a Wrightways Dragon twice carried gold from Paris to London on two consecutive days. On each day the early morning newspaper machine came back with this extraordinary freight.

The disappearance of Sir Charles Kingsford Smith and his companion caused deep concern at Croydon, where he had many friends. It was a strange coincidence that when "Smithy" was refuelling at Athens, Comdr. van Dyk, of K.L.M., his co-pilot in the 1930 east-to-west Atlantic flight with the *Southern Cross*, was able to wish him God-speed, as van Dyk dropped in at Athens on his way home from Batavia with the mails. The last time they had met was at Croydon.

A. VIATOR.

Commercial Aviation

Another Airport for London?

IT appears that a city syndicate propose to lay out a large airport at North Ilford, and to this end they plan to purchase a thousand acres. The L.C.C., on the other hand, want to use the land for housing purposes.

Unless this same syndicate have big air line plans of their own it is difficult to see the present justification for yet another airport in the London area. The position at Ilford suggests European ambitions.

A Japanese Extension

DURING the past few months the Japan Air Transport Company have been using an Airspeed Envoy, and, as already reported, this machine, which is fitted with Wolseley engines, is giving good service.

The company have now extended their network to Taihoku (Formosa), which is reached from Hukuoka via the island of Naha. In addition to three Fokkers and the Envoy, J.A.T. now operate a Douglas D.C.2.

A Portuguese Agreement

THE Portuguese Government has accepted certain proposals made to it by the British Government in connection with an interchange of facilities for air services crossing British and Portuguese possessions in Africa. The note handed in by the British Ambassador and the reply, which is couched in similar language, are considered as constituting the agreement. The eight clauses provide for:

(1) The British Government concedes to aircraft belonging to Portuguese Companies the right to fly over and land in Northern Rhodesia, while engaged on regular air services between Mozambique and Angola. (2) The Portuguese Government concedes to aircraft belonging to British Companies the right to fly over and land in Portuguese East Africa (including adjacent Portuguese territorial waters), whilst engaged in regular air services between British territories in East and South Africa. Such aircraft are also allowed to fly over and land in Portuguese East Africa on the regular air route between Salisbury and Beira, Beira and Blantyre, and Blantyre and Salisbury. (3) The British Government will permit Portuguese aircraft belonging to Portuguese Aerial Transport Companies to fly over Gambia on the regular service between Portuguese Guinea and Senegal. (4) The Portuguese Government will permit British aircraft to fly over Portuguese Guinea on regular air services. (5) Each Government undertakes to notify the other of the date upon which it is proposed to start such services, and to inform them of the aerodromes and landing grounds it is desired to use. Three other clauses cover the details, and the agreement will be in force for five years from October 24.

The Agreement is all in our favour, as the Portuguese have, as yet, no air line with the exception of that between Lisbon and Tangier.

A Heston Obstruction

PILOTS are warned that a 196-foot mast—presumably for Heston's radio station, which is at present using temporary masts behind the administrative buildings—has been erected immediately S.W. of the railway station at Hayes, Middlesex. The mast is suitably lighted at night.

California to New Zealand

LAST week was signed the expected agreement between the New Zealand Government and Pan American Airways concerning the projected service between San Francisco and Auckland. P.A.A. are to run at least two return trips every month, and any British company working from New Zealand is to be allowed a port of call in the Pacific or on the American coast.

The service is expected to start before the end of 1936, and the route will be via Honolulu, Kingman Reef, Pagopago (Samoa), and Auckland.

Meanwhile, the Martin *China Clipper* left Alameda last week on the first real mail service to Hawaii and the Philippines. At the time of going to press the boat had reached Honolulu and was carrying about two tons of mail on the first stage of the journey.

Halving the Time

THE regularity statistics for the period from October 1, 1931, to October 1, 1935, give a most interesting view of the development of the K.L.M. Batavia service.

Originally the pilots were authorised to shorten the flights as much as perfect safety would allow, and during the winter service 1931-32 ten machines arrived at Batavia one day early. On the home journey the average was 11½ days for each flight. The K.L.M., as a result, started the summer service for homebound machines in April, 1932, with a schedule of 9 days. Except four, all machines arrived on time. In the eastward direction the summer service began in June, but then it seemed much more difficult to follow the new scheme, and various machines arrived late. The winter service for 1933-34 was effected with extraordinary regularity, and in the summer of 1934 all the flights were carried out according to the schedule of 7½ days. In June, 1935, the service was doubled and the time for each journey fixed at 5½ days, and at the same time entirely new material was taken into service—all this during an exceptionally heavy monsoon season. During the first months delays were unavoidable, but from the beginning of August to the end of September all went very well once more.

From these statistics it is clear that the regularity increases year by year and also that the homebound journeys are, as a rule, effected more quickly than those in the opposite direction. The scheme for the flights during the winter season, 1935-36, has, therefore, been fixed at 5½ days for the westward journey and 6 days for the eastward one.



IN THE WILDS : Mining prospectors with their Junkers W.34 freighter in Canada.

The Prague-Moscow Service

IT is reported in *Izvestia* that a Fokker F.7 of the Czechoslovakian State Air Line has now completed a second experimental flight on the new passenger line between Moscow and Prague. The first test flight was carried out at the beginning of November on the Soviet ANT-9. A regular passenger service should be instituted in the spring.

The Hong Kong Link

NOW that the series of experimental flights between Penang and Hong Kong have been successfully completed, it is to be presumed that a regular service will eventually be established. The D.H.86 *Dorado*, which has been piloted on these flights by Capt. W. Armstrong, arrived at Kuala Lumpur on November 21 after its last trip, and the pilot said that the schedule had been maintained save once when the machine was delayed at Hue owing to bad weather.

Mails by Night

THE Post Office committee's report on the use of air services is now, it appears, in the hands of another committee dealing with transport co-ordination generally, and to them will be available the Air Ministry's survey report on internal air lines. Some useful plans and suggestions should be published quite shortly. From what can be gathered the G.P.O. report recommends the use of night flying services as an auxiliary rather than as a replacement system.

The Himalayan Air Service

THE experimental air service between Haridwar and Gauchar in the Himalayas, which was started in April, has shown very encouraging results. The service was started with the idea of connecting Haridwar with Bindrawan, the seat of the greatest Hindu shrines, which attracts pilgrims from all parts of India. Survey work has been proceeding rapidly and a suitable landing ground selected near Badrinath is ready, and the service is expected to be extended next year.

Efforts are being made to select landing grounds at other well-known historic places in the Himalayan region, and it is expected that the tourist will have the advantage of visiting the famous peaks of Nanda Devi and Kamat by air.

A New Mail Contract

SINCE mail contracts are now put out to tender, these are obtained by the lowest bidder. Railway Air Services will, in future, carry mails on the London-Belfast-Glasgow route—a contract which has, for the past year, been held by Hillman's Airways.

As a result the time-table has been modified, and machines now leave Croydon at 9.30 a.m. and leave Glasgow at 7.50 a.m. Possibly the earlier start from Glasgow will be appreciated by business people, though we doubt it. Although the arrangement gives them a full afternoon in London, Renfrew has to be reached, and the unfortunates will need to arise very much in the wee sma' hours. The D.H.86 will call on request at both Birmingham (Castle Bromwich) and Stoke-on-Trent (Meir). Manchester is not now included.

The Irish Service

FOR some years past there has been frequent talk of an air service between London and Dublin. This talk has invariably come to nothing. Now, however, it is understood that preparations are being made for the establishment of such a service, and the Minister for Industry and Commerce (Mr. Sean Lemass) has promised to make a statement on the matter in the Dail. Olley Air Services, of Croydon, will, it is reported, operate the London-Dublin line in conjunction with a group of Irish business men, some of whom are connected with the Irish Aero Club.

Recently the Minister for Industry and Commerce issued an Order—pursuant to Article 15 of the I.C.A.N.—prohibiting the establishment of any airway between the Irish Free State and any other country except with his permission. His object in this, he said, was to limit or regulate competition in the public interest. In other words, it may be assumed that Olley Air Services and their Irish associates will have a virtual monopoly of the route.

Conversations on the matter have been taking place with the British Government for some time past. Further conversations have dealt with the Transatlantic airway, and Mr. Sean Leydon (Secretary to the Department for Industry and Commerce), with Mr. J. P. Walshe (Secretary to the Department of External Affairs), has gone to Ottawa to represent the Free State at the conference.

Plesseys at Play

MORE than six hundred people sat down to dine at the Wharnccliffe Rooms, Marylebone, last Saturday, when the Plessey Company held its eleventh annual dinner and dance. Mr. B. G. Clark, the father of the present managing director, Mr. A. G. Clark, was in the chair. The general spirit of several short and sometimes very amusing speeches appeared to be typified in the latter's remark that he hoped that there would be more than a thousand guests there next year!

Another

IMPERIAL AIRWAYS, after a long period of wonderful reliability, have certainly been going through a jet black period recently—not, fortunately, with any loss of life. The number of machines which have been slightly damaged or completely written-off during the past month must be now approaching the round dozen.

On Monday one of the Scipio class of flying boats was slightly damaged in Brindisi harbour by an Italian torpedo-boat and the service, it is understood, was temporarily suspended. It will be remembered that *Sylvanus* was burnt out at Brindisi only a fortnight ago.



CYCLONIC: Mr. Lee Smith and the demonstration Vulture which, with a Wright Cyclone F. engine of 750 h.p., has a maximum speed of 235 m.p.h. Another photograph appears on page 561. (Flight photograph.)

Empire Airway Exhibition

THE exhibition, mentioned in last week's issue, portraying the organisation and operation of the air services over Empire air routes, will be opened at the Science Museum, South Kensington, by the Secretary of State for Air on Thursday, December 5, and will remain open until January 31.

This exhibition, which is being organised by Imperial Airways, will illustrate the development of air communications within the Empire by means of models, charts, maps and photographs, and will include models of every type of air liner which has been owned by the company since its inception, as well as sectional models of the new liners which are now under construction.

A part of the exhibition will be devoted to the design of air ports, and will include a large model of a modern combined land and air port, and dioramas of three famous Empire air ports. There will also be working models showing the part which wireless plays in the control of aircraft when flying in fog or above cloud. In this case the visitor, by pressing a button, will be able to hear the voice of the captain calling for his position and the replies from wireless stations on the ground. There will be sections devoted to the building of a flying-boat and a land machine, and to aero engines. Operable models of a wind tunnel and a tank will enable the visitor to gain some idea of the part which these instruments play in the design of air liners.

THE INDUSTRY

Mr. F. A. I. Muntz

IN June, 1933, Messrs. Norman, Muntz and Dawbarn agreed to enter into partnership as aeronautical consultants. Owing to his other activities Mr. Muntz has been unable to take an active part in the firm, and has consequently requested that his name be withdrawn. The partnership will accordingly be known in future as "Norman and Dawbarn."

Indubitably!

This was the cable which the K.L.G. Company received from H. F. Broadbent in Australia in reply to their request for confirmation as to his equipment: "Until your cable reminded me I had completely forgotten that my Gipsy Six was fitted with such things as plugs. Most definitely they were K.L.G.s."

The Bristol Dividend

The directors of the Bristol Aeroplane Co., Ltd., have declared an interim dividend of $7\frac{1}{2}$ per cent., subject to the deduction of income tax, upon the ordinary shares. The ordinary share register is closed from November 20 to 29, both days inclusive, and the dividend warrants will be posted on November 29.

A Home Post

MR. A. V. HARVEY, who has just returned to England after $5\frac{1}{2}$ years in China (where he was manager of the Far East Aviation Co. and director of their flying school), has joined Radio Transmission Equipment, Ltd., as general sales manager.

Incidentally, R.T.E. last week purchased a Jubilee Monospar for radio research and demonstration purposes.

Instrument Manufacturers' Progress

AT the twenty-first ordinary general meeting of S. Smith and Sons (Motor Accessories), held last week at Crick's-wood, the chairman (Mr. Walter Henderson-Cleland, M.C.) said that the year's business had beaten all previous records in the numbers of instruments supplied, and that they had added further products to their established lines. This applied also to the aircraft section. The majority of British machines were fitted with their instruments as standard equipment, and besides supplying the bulk of the instruments used in these machines, they supplied a large number to users and manufacturers of aircraft abroad.

During the year a controlling interest had been acquired in Henry Hughes and Son, Ltd., the well-known makers of aeronautical and marine instruments, including compasses and the echo depth sounder. For a long time they had handled the sales of certain of that firm's products, and by this purchase they had consolidated their position as the largest manufacturers of aircraft instruments.

NEXT WEEK'S ISSUE OF

FLIGHT

NEXT week "FLIGHT" will publish an issue of outstanding interest and utility, the annual special **BRITISH AIRCRAFT INDUSTRY NUMBER.**

It will form a complete review of the products of more than thirty firms manufacturing civil and military aircraft and will contain, in addition, a review of modern British aero engines and a survey of the accessory and component field.

Tables of dimensions and performance figures, and the many illustrations, will make this issue of "FLIGHT" of exceptional value as a work of reference.



ENVIABLE: Town workers must envy the office staff of Aircraft Components Ltd., the well-known undercarriage specialists, who are now installed in this fine-looking mansion, Arle Court, Cheltenham, adjacent to their new factory.

An International Directory

A NEW international directory of aviation, *Interavia ABC*, is to be published in the early part of 1936. It will embrace every country in the world, and will be printed in five different languages. In order that the information may be as complete as possible, questionnaires have been forwarded to all known firms connected with aviation in this country, and if any company has not yet received a form application should be made to the publishers; inclusion is free.

The directory will be priced at 12s. 6d., but particulars of a 10s. pre-publication offer (open up to January 1) are obtainable from *Interavia ABC*, 18-20, Lower Regent Street, London, S.W.1.

Vickers Board of Directors

VICKERS, LTD., announce certain changes in the constitution of their board of directors and of the boards of their subsidiary companies, Vickers-Armstrongs, Ltd., and English Steel Corporation, Ltd., following the death of Sir Mark Webster Jenkinson, and the acquisition by Vickers, Ltd., of the whole of the share capital of Vickers-Armstrongs, Ltd.

The following have been appointed to the board of Vickers, Ltd.: Major-General Sir John Humphrey Davidson and Mr. F. C. Yapp.

As from January 1, 1936, the board of Vickers-Armstrongs, Ltd., will be constituted as follows: Comdr. Sir Charles Craven, R.N. (chairman and managing director), Gen. Sir J. F. Noel Birch, Sir A. George Hadcock, Mr. F. C. Yapp, Mr. J. Callander (general manager of the Barrow Works and Naval Yard, Newcastle-on-Tyne), and Mr. J. Reid Young (secretary of Vickers, Ltd.).

As from January 1, Comdr. Sir Charles Craven, R.N., will be chairman of English Steel Corporation, Ltd., in place of Col. J. B. Neilson, and will retain his office as managing director. Mr. F. Pickworth will be a director of English Steel Corporation, Ltd., from the same date.



AERONAUTICAL PATENT SPECIFICATIONS

(The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

Published November 28, 1935.

- 12678. FUJIMOTO, B.: Aeroplanes (437,447).
- 12807. WILKENIG, F. W.: Aircraft (437,521).
- 15078. BENDIX AVIATION CORPORATION: Vehicle brakes (437,620).
- 10101. SHORT, H. O., AND GOUGE, A.: Wing tip floats for seaplanes (437,405).
- 27227. BRISTOL AEROPLANE CO., LTD., FEDDEN, A. H. R., AND OWNER, F. M.: Manufacture of hollow airscrew blades (437,692).
- 35054. FAIREY, C. R.: Flexible drive for airscrews (437,406).
- 10729. HAMILTON STANDARD PROPELLER CO.: Screw propellers (437,631).
- 15888. HUGHES, G. (COLLIS, R.): Locking devices for use in connection with pins, bolts, or the like, for aircraft assembly and other purposes (437,435).
- 29014. WILKENIG, F. W.: Aircraft (437,715).